Colbricon Inferiore (Trentino, Italia)

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Lake sediments have long been used as an archive for paleoclimatic-paleoenvironmental reconstructions, with more and more refined techniques developed in the late 40 years. This work is an attempt to reconstruct with a multiproxy paleolimnological technique the ecosystem response in Colbricon Inferiore, a small high-mountain lakes located in the Paneveggio-Pale di S. Martino Natural Park(Trento, Italy). A ca. 360cm long core was retrieved with a piston core; a gravity corer was used for the most recent sediment. Chronology was established by a combination of ^{210}Pb and ^{14}C isotopes. Diatom assemblages show changes in species composition that could be associated to an initial warm phase (Allerod), a following colder one (YD) and a progressive amelioration of climate until the optimum (8500-3500). During the transition period (10000-8000) carotenoids point out to an increase of cyanobacteria (Echinenone and myxoxanthophyll) associated with an increase of fire frequency and the first settlement around Lake Colbricon.
Along the climatic optimum, algal pigment are rather stable and Chryptophytes (alloxanthin) are well represented pointing to a high and stable water level. Diatom assemblages are dominated by the planktonic *Discostella stelligeroides*. At ca. 3500 yrs. B.P., a new phase begins with a decrease of *D. stelligeroides* and an increase of the small benthic fragilariaceae (*Staurosira* and *Pseudostaurosira* species) typical of cold-water conditions. At this level, there is a general increase of carotenoids and a shift in the ratio CD:TC. This suggest, rather than an increase in productivity, a change in the preservation conditions associated with the worsening of climate. After 2000 cal yr BP the lake seems quite stable: diatom assemblages are dominated by *Staurosira* and *Pasudostaurosira* species. Algal pigment are also quite stable apart myxoxanthophyll that increase in the more recent phase.